

TOXIC CAGES

Toxic contaminants at Goodfellow Air Force Base put children's health at risk



In 2018, President Trump's "zero-tolerance" immigration policy created a need for additional capacity to house migrants detained at the U.S.–Mexico border. As the administration triggered a public outcry by separating migrant children from their parents, the government determined that the Department of Defense would provide the space in Texas, and started the process of planning detention centers at Goodfellow Air Force Base in San Angelo, and at Fort Bliss, a base in El Paso.

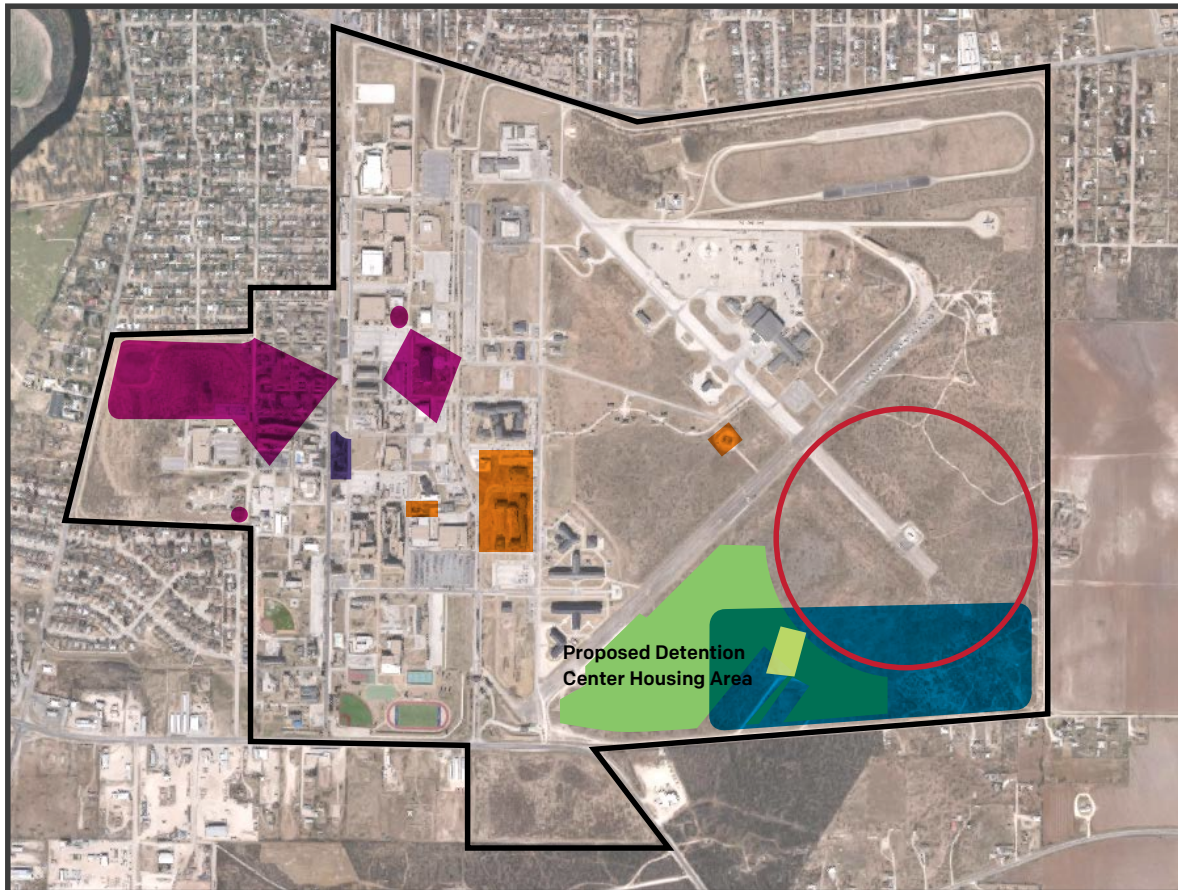
In response, health, labor, civil rights, and environmental organizations represented by Earthjustice have for months asked the government via expedited record requests to reveal where exactly it plans to detain migrant families and children slated to be housed at these bases, and to identify all the hazardous waste sites that have the potential to impact residents and workers. These bases are known to be riddled with toxic hazards from past military operations, spills, storage of toxic chemicals, unexploded ordnances, and firing ranges, to name a few. Because the U.S. Air Force has illegally failed to respond to the Freedom of Information Act request, Earthjustice has filed litigation to compel the government to turn over the documents. As of February of 2019, litigation over the documents filed on behalf of the Hispanic Federation, National Hispanic Medical Association, Labor Council for Latin American Advancement, Southwest Environmental Center, GreenLatinos and Alianza Nacional de Campesinas, is ongoing.

Since the government refuses to comply with the Freedom of Information Act request concerning Goodfellow Air Force Base, Earthjustice turned to publicly available environmental records to shed light on the government's plan to house approximately 7,500 unaccompanied migrant children at Goodfellow Air Force Base (GAFB). The following report is based on dozens of documents developed by the Air Force during various investigations under Superfund, including site investigations, inspections, and feasibility studies. It shows that the Trump administration plans to build the detention center on top of a former landfill, in an area filled with major potential health risks, particularly for children. The area is contaminated with lead, arsenic, benzene, PFAS, and other chemicals associated with increased risk of cancer and neurodevelopmental damage. Other contaminants detected at the site include volatile organic compounds, or VOCs, which contaminate the air and threaten human health through vapor intrusion causing nausea, headaches, and damage to the nervous system, kidneys, and liver.

REPORT FINDINGS: GAFB'S HAZARDOUS SITES THREATEN CHILDREN'S SAFETY¹

An extensive Earthjustice review of publicly available documents reveals numerous hazardous Superfund sites at GAFB where toxic chemicals may endanger children and workers. Most sites were never fully investigated or remediated. Since investigations of some of the sites were completed decades ago, the benchmarks applied by GAFB lack the rigor of current standards and consequently fail to ensure protection of public health and safety. In some cases, cleanups are clearly inadequate to support children's housing, and in many cases, data are simply insufficient to determine current conditions. The bottom line is that GAFB's legacy waste sites pose serious risks and require new, comprehensive investigations.

Superfund Sites Near Proposed Housing at Goodfellow AFB



- **Proposed Detention Center Housing Area** ^(a)
- **Restricted Area** ^(a)
- **Firing Range** ^(a) (lead-contaminated soil)
- **Carbon Tetrachloride Spill** ^(b, c) (high levels of several volatile organic chemicals (VOCs))
- **Southeast Landfill** ^(c) (various chemicals, including, organic chemicals, fuels, lead, arsenic, and other solid wastes in soil and groundwater)
- **Fuel Storage & Spill Area** ^(b) (arsenic and high levels of VOCs, including benzene, toluene, chlorobenzene, trichloroethene, 1,1 dichloroethene, methylene chloride, chloroform, and carbon tetrachloride in groundwater)
- **Aqueous Film Forming Foam (AFFF) Release Area** ^(d) (perfluorinated chemicals)
- **Goodfellow Air Force Base Boundary**

^a Draft Environmental Assessment (July 2018), Figs. 2-1, 3-2, & 3-3

^b Final First Five-Year Review (July 2012), Fig. 1-2; Final Five-Year Review (Apr. 2017), Fig. 1-2

^c Annual Inspection Report (May 2018), Fig. 2

^d Draft Final Site Inspection Report, Amec Foster Wheeler (Sept. 2018), Figs. 2.3-1, 3.1-1, & 3.2-1

¹ David Lang, L.S.P. Toxic Threats for Migrant Children at Goodfellow Air Force Base (January 15, 2019)

FOUR SUPERFUND SITES NEAR THE PROPOSED HOUSING SITE WERE IDENTIFIED *(see Map page 2)*

- 1** Small Arms Firing Range (AFR): The AFR was an area used by base personnel from the late 1960s to the 1990s as a firing range inside the boundary of the Southeast Landfill. GAFB determined that soil was contaminated with lead, and some cleanup occurred in 2009. Cleanup was not, however, conducted to levels deemed safe for residential use by the Environmental Protection Agency (EPA). Therefore, extensive testing and additional remediation is necessary.
- 2** Southeast Landfill (SL): The proposed footprint of the residential housing is on top of and adjacent to an old GAFB dump known as the Southeast Landfill. From 1970 to 1982, when regulations for addressing spilled chemicals were nearly non-existent, GAFB dumped toxic chemicals, fuels, and other solid wastes in the landfill. While GAFB completed a partial cleanup, the landfill was never properly closed by today's standards and does not constitute a safe building site. Wells around the landfill that were inadequate in the 1980s to evaluate the contamination were destroyed by GAFB more than 30 years ago. In addition, recent dumping along the landfill's perimeter has never been investigated. Substantial new investigations are necessary to determine current environmental conditions.
- 3** Fuel Storage Facility (FSF) and Carbon Tetrachloride Spill (CTS): Extremely high levels of VOCs and other chemicals were found near the FSF in the late 1980s, which was likely the result of extensive chemical spills. This historic spill area, used since the 1950s, should have triggered comprehensive and long-term groundwater monitoring and concern for indoor air quality. These studies were never completed. The potentially related Carbon Tetrachloride Spill Area was designated as a separate Superfund site in 2002, when high levels of carbon tetrachloride were found both on and off the base property. It appears that the plume may not have been fully remediated, and its full extent is presently unknown. GAFB has, however, removed all monitoring wells where housing construction will occur, despite the fact that the proposed housing is planned within the CTS and FSF release areas. (See Map page 2). A full investigation of both release areas must be conducted to determine the nature and extent of contaminants in the vicinity of the housing.
- 4** Aqueous Film Forming Foam (AFFF) release areas. There are at least nine fire training areas where per- and polyfluoroalkyl substances (PFASs) were stored and used by GAFB personnel, and where releases may have occurred. GAFB has only recently begun to identify and investigate these areas. The proximity of the PFAS release areas to the children's housing site requires a full site investigation. Potential exposure routes for PFAS-contaminated soil include inhalation of impacted soil dust particles and ingestion and dermal contact with impacted soil. Pathways for human exposure to PFAS-impacted surface soil through inhalation, ingestion, and/or dermal contact were identified for AFFF Release Areas 1 and 2. (See Map page 2). Further investigation of exposure conditions are required at all nine PFAS sites. Because no sampling of groundwater for PFAS was ever conducted, far more assessment is necessary prior to building children's housing near these toxic areas.

HEALTH IMPACTS

Children breathe, eat, and drink more relative to their body weight compared to adults, increasing their exposure, and ultimately, the harm from toxicological effects of contaminants. The World Health Organization has found that 1 in 4 child deaths could be prevented by cleaning up the environment, specifically indoor and outdoor air pollution and unsafe water.²

Young children have less developed natural defenses, including a more permeable blood-brain barrier, less effective filtration in nasal passages, highly permeable skin, and vital organ systems that are still developing.³ Unfortunately, current human health risk evaluations rarely account for the differences in a child's body composition and stage of development. In fact, when setting risk and health limits, current evaluations compare adverse health effects to a 70-kilogram adult male. Only

² https://www.who.int/features/factfiles/children_environmental_health/en/

³ <https://www.epa.gov/children/children-are-not-little-adults>

in certain cases, when a contaminant is a known carcinogen, will EPA potentially apply what is known as an age-dependent adjustment factor (ADAF) to account for increased susceptibility from early-life exposure.⁴

LEAD CONTAMINATION

Lead has been detected in the soil and groundwater near the small arms range, the landfill and the fuel storage site. Although some soil cleanup has occurred, the area does not meet current EPA safety standards. Previously, soil near the small arms range was contaminated with lead levels as high as 11,000 mg/kg (or 11,000 ppm). EPA's standard for lead in bare soil in play areas is 400 mg/kg and 1,200 mg/kg for non-play areas. In the groundwater near the fuel storage site, levels as high as 70 ug/L were detected with exceedances occurring at several other wells. This level is seven times the federal drinking water standard for lead. Lead levels in soil or groundwater for the landfill have not been provided, despite the fact that the planned housing is designed to be placed partially on top of the old landfill.

Lead is a powerful neurotoxin, meaning it causes damage to the brain. There is no known safe level of lead in the human body. This is especially concerning for infants and young children whose brains are still developing. The Centers for Disease Control (CDC) says children up to age 6 are at risk for lead poisoning.⁵

Lead exposure can result in a number of adverse health outcomes in young children including:

- brain damage resulting in IQ loss, learning disabilities, hyperactivity, inability to concentrate, and/or behavioral problems
- stunted growth
- hearing problems

Exposure to high levels of lead can also injure other soft tissues and organs, interfere with the formation of blood, and can even result in death.

VAPOR INTRUSION

Vapor intrusion occurs when volatile organic compounds (VOCs) present in groundwater and/or soil migrate to indoor environments. The vapors (or gases) penetrate buildings through cracks in the foundation and openings for utility lines. Similar to radon, these contaminants pose threats to indoor air quality and, in extreme cases, can cause death. VOCs can only be identified in indoor environments via testing for the presence of the contaminants themselves. According to the report,⁶ a large plume of VOCs was identified, the source of which is unknown. Based on the level of contamination in the soil and groundwater found near the housing site, it is plausible that the VOCs present would lead to vapor intrusion in any structures built and where children might reside.

As outlined in the groundwater contamination section and tables below, a number of VOCs identified on site – trichloroethylene (TCE), benzene, tetrachloroethylene and carbon tetrachloride – are extremely potent and cause known health concerns for children. Acute symptoms may include nausea, headaches, trouble breathing, difficulty concentrating, and even death. Over time, long-term exposure – even to low levels – can cause damage to the nervous system, kidneys, and liver.

Some VOCs like benzene and TCE are known cancer-causing agents and have been classified as such by EPA, the International Agency for Research on Cancer, and HHS's own National Toxicology Program.⁷ Long-term exposure to VOCs is of special concern for children as they are at greatest risk due to their small size and their sensitivity to neurodevelopmental effects.

PER- AND POLY- FLUOROALKYL SUBSTANCES (PFAS) CONTAMINATION

PFAS are a class of manufactured chemicals that were used as flame retardants and stain repellants. Due to widespread use, PFAS are ubiquitously present in the environment, and routes of exposure typically include drinking water or food (via food packaging). For the behavioral and biological reasons listed

⁴ https://www3.epa.gov/airtoxics/childrens_supplement_final.pdf

⁵ <https://ephrtracking.cdc.gov/showCommunityDesignAddLinkChildhoodLeadPoisoning.action>

⁶ See note 1, *supra*.

⁷ <https://www.atsdr.cdc.gov/pfas/pfas.asp?id=171&tid=30>

⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5551129/>, <https://www.atsdr.cdc.gov/pfas/health-effects.html>, <https://www.epa.gov/pfas/basic-information-pfas>

above, children exposed to PFAS have been found to have a higher body burden (i.e. elevated measured serum levels when compared to adults), and the exposure may affect a child's health throughout development and potentially later in life.

A number of studies have found adverse health impacts to particular PFAS, though little is known about health effects resulting from exposure to complex mixtures of PFAS. Once introduced to the environment, PFAS are both extremely persistent and resistant to environmental degradation, meaning PFAS deposition from decades ago can still cause adverse health effects. Studies have found adverse neurodevelopmental effects, including learning delays and increased risk for ADHD and autism⁸. Other health impacts include altered thyroid and immunological system function, altered timing of puberty onset, and increased risk of cancer.

GROUNDWATER CONTAMINATION

The Maximum Contaminant Level (MCL) is the maximum level allowed of a contaminant in water that is delivered to any user of a public water system set by the U.S. Environmental Protection Agency pursuant to the Safe Drinking Water Act. In addition to being an enforceable standard, the MCL was designed to regulate drinking water to protect public health. Unlike the Maximum Contaminant Level Goal (MCLG), which is the non-enforceable, aspirational health protective level, the MCL accounts for costs of treatment to the water system, precision and accuracy of measuring techniques, and the availability of treatment technologies. In this respect, the MCL balances technical feasibility, cost, and protection of public health. Maintenance of the MCL requires monitoring and when the MCL is exceeded, public notice and remediation must occur.

Below are listed a number of contaminants that have been detected in groundwater at alarmingly high levels at the GAFB. While it is not clear whether groundwater will be used as drinking water for the detention center, some levels of toxic contaminants are high enough to trigger concern for vapor intrusion. Additionally, accompanying health effects information is included below.

SOUTHEAST LANDFILL (SL)

CONTAMINANT	LEVEL DETECTED AT SITE	EPA MCL	EPA MCLG	POTENTIAL FOR EXPOSURE VIA VAPOR INTRUSION	KNOWN HEALTH EFFECTS
Carbon tetrachloride	11 ug/L	5 ug/L	zero	Yes	Liver problems; increased risk of cancer
Bis (2-ethylhexyl phthalate) OR Di(2-ethylhexyl)phthalate (DEHP) – most common and most toxic known phthalate	28 ug/L	6 ug/L	zero		Reproductive difficulties; liver problems; increased risk of cancer

FUEL STORAGE FACILITY (FSF) AND THE CARBON TETRACHLORIDE SPILL (CTS)

CONTAMINANT	LEVEL DETECTED AT SITE	EPA MCL	EPA MCLG	POTENTIAL FOR EXPOSURE VIA VAPOR INTRUSION	KNOWN HEALTH EFFECTS
Carbon tetrachloride	21,000 ug/L	5 ug/L	zero	Yes	Liver problems; increased risk of cancer
Ethylbenzene	120,000 ug/L	700 ug/L	700 ug/L	Yes	Liver or kidney problems
1,1 dichloroethene OR 1,1-dichloroethylene	84,000 ug/L	7 ug/L	7 ug/L	Yes	Liver problems
Trichloroethene OR Trichloroethylene	110,000 ug/L	5 ug/L	zero	Yes	Liver problems, increased risk of cancer
Chlorobenzene	130,000 ug/L	100 ug/L	100 ug/L	Yes	Gastrointestinal (stomach and intestines, part of the digestive system), hepatic (liver), neurological (nervous system); likely to be carcinogenic to humans
Chloroform	29,000 ug/L	N/A	N/A	Yes	Cardiovascular (heart and blood vessels), developmental (effects during periods when organs are developing), hepatic (liver), neurological (nervous system), renal (urinary system or kidneys), reproductive (producing children), probable human carcinogen
Toluene	69,000 ug/L	1000 ug/L	1000 ug/L	Yes	Hematological (blood forming), neurological (nervous system)
Lead	70 ug/L	Action level = 15 ug/L (will likely be lowered to 5 ug/L in pending report of standard)	zero		Delays in physical or mental development; children could show deficits in attention span and learning abilities
Benzene	110,000 ug/L	5 ug/L	zero	Yes	Anemia, decrease in blood platelets; increased risk of cancer
Arsenic	151 ug/L 370 ug/L (recent estimate show 20 ug/L and 14.9 ug/L as of October 2017)	10 ug/L	zero		Skin damage or problems with circulatory systems, and possible increased risk of getting cancer
Methylene chloride	100,000 ug/L	5 ug/L	zero	Yes	Liver problems; increased risk of cancer

CONCLUSION

The Trump administration's immigration policy has been a disaster since day one. Yet its disregard for human rights, as well as the health of migrants, and more specifically migrant children, is reaching new heights with its plans to detain the most vulnerable in the polluted GAFB. If these plans go forward, approximately 7,500 migrant children will be detained in an area contaminated with lead, arsenic, benzene, PFAS, and myriad other harmful chemicals associated with increased risk of cancer and permanent neurodevelopmental damage. Essentially, instead of protecting children fleeing violence and extreme poverty, the government wants to detain them on top of a former landfill in a chemically polluted military base. The process of building detention centers, meanwhile, is proceeding quietly and with little accountability. This report makes it clear that detaining migrant children on GAFB is not just ill-conceived, it is dangerous and could damage the lives of thousands of children for years to come. Migrant children fleeing desperate conditions do not belong in cages, let alone chemically polluted cages.



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